IN THE CLAIMS:

Please note that each of the claims that remains pending and under consideration in the above-referenced application is reproduced below, in clean form, for the sake of clarity. In addition, a marked-up version of each amended claim is enclosed herewith to clearly show each change that has been made thereto.

Please enter the claims as follows:

1. (Amended four times) A contact for a semiconductor device, comprising:
an intermediate conductive layer contacting and in electrical communication with a structure located at a lower level than a silicon-containing dielectric layer of the semiconductor device;
an insulator component positioned adjacent said intermediate conductive layer so as to at least thermally insulate said structure; and
an electrically conductive contact layer adjacent said insulator component and in communication with said intermediate conductive layer.

2. The contact of claim 1, wherein said insulator component is sandwiched between said intermediate conductive layer and said contact layer.

3. The contact of claim 1, wherein said intermediate conductive layer and said contact layer substantially envelop said insulator component.

4. (Previously amended) The contact of claim 1, wherein said insulator component comprises an insulator material including at least one of undoped silicon dioxide, doped silicon dioxide, silicon nitride, a thermoset polymer, and a thermoplastic polymer.

5. The contact of claim 1, wherein said intermediate conductive layer comprises an electrically conductive material.

6. The contact of claim 1, wherein said intermediate conductive layer has a thickness of about 200 angstroms or less.

7. (Previously amended twice) The contact of claim 69, wherein said intermediate conductive layer comprises a material having a melting temperature that is greater than a temperature required to switch a phase change component in electrical communication with the contact between a plurality of states.

8. (Previously amended) The contact of claim 1, wherein said intermediate conductive layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

9. The contact of claim 1, wherein said contact layer has a thickness of about 200 angstroms or less.

10. The contact of claim 1, wherein said contact layer comprises a material having a melting temperature that is greater than a temperature required to switch a phase change component in electrical communication with the contact between a plurality of states.

11. (Previously amended) The contact of claim 1, wherein said contact layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

12. (Previously amended three times) A contact for a memory element of a semiconductor device, the memory element including a phase change component, the contact comprising:

an insulator component comprising a thermally and electrically insulative material;

an intermediate conductive layer adjacent said insulator component and contacting and in electrical and thermal communication with the memory element; and

a contact layer adjacent said insulator component and in electrical contact with said intermediate conductive layer, said contact layer and said intermediate conductive layer substantially enveloping said insulator component.

13. (Previously amended) The contact of claim 12, wherein said thermally and electrically insulative material comprises at least one of undoped silicon dioxide, doped silicon dioxide, silicon nitride, a thermoset resin, and a thermoplastic polymer.

14. The contact of claim 12, wherein said intermediate conductive layer comprises an electrically conductive material.

15. The contact of claim 12, wherein said intermediate conductive layer has a thickness of about 200 angstroms or less.

16. The contact of claim 12, wherein said intermediate conductive layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of the phase change component from a first state to a second state.

17. (Previously amended) The contact of claim 12, wherein said intermediate conductive layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

18. The contact of claim 12, wherein said contact layer has a thickness of about 200 angstroms or less.

19. The contact of claim 12, wherein said contact layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of the phase change component from a first state to a second state.

20. (Previously amended) The contact of claim 12, wherein said contact layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

32. (Amended four times) A contact for a semiconductor device including a contact layer and an intermediate conductive layer which partially contact one another and substantially envelop an insulator component, the contact contacting a structure located at a lower level than a silicon-containing dielectric layer of the semiconductor device so as to at least thermally insulate the structure, the contact fabricated by the process comprising:

forming the intermediate conductive layer on a surface of the semiconductor device and in electrical thermal communication with an active device region of the semiconductor device;

depositing a dielectric layer on the intermediate conductive layer;

patterning said dielectric layer to define the insulator component;

forming the contact layer substantially over an exposed area of the insulator component and in electrical communication with the intermediate conductive layer;

patterning the intermediate conductive layer; and

patterning the contact layer.

33. (Previously amended) The contact of claim 32, wherein said forming the intermediate conductive layer comprises disposing a conductive material in electrical and thermal communication with a phase change component of said active device region.

34. The contact of claim 32, wherein said forming the intermediate conductive layer comprises forming a thermally conductive material layer having a thickness of about 200 angstroms or less.

35. The contact of claim 32, wherein said forming the intermediate conductive layer comprises depositing a thermally conductive material.

36. The contact of claim 32, wherein said patterning said dielectric layer comprises etching and employs the intermediate conductive layer as an etch stop.

37. The contact of claim 32, wherein said forming the contact layer comprises forming an electrically conductive material layer having a thickness of about 200 angstroms or less.

38. (Previously amended) The contact of claim 32, wherein said forming the contact layer comprises depositing an electrically conductive material.

39. (Previously amended three times) An electrically erasable programmable memory device, comprising:

a memory element including an electrode adjacent a memory cell, at least one of said electrode and said memory cell comprising a phase change material; and

a contact including an intermediate conductive layer contacting and in electrical and thermal communication with said memory element, an insulator component adjacent said intermediate conductive layer, and a contact layer adjacent said insulator component and in electrical communication with said intermediate conductive layer.

40. (Previously amended) The electrically erasable programmable memory device of claim 39, wherein said intermediate conductive layer contacts said electrode.

41. (Previously amended) The electrically erasable programmable memory device of claim 39, wherein said contact layer and said intermediate conductive layer substantially envelop said insulator component.

42. (Previously amended) The electrically erasable programmable memory device of claim 39, wherein said insulator component is sandwiched between said contact layer and said intermediate conductive layer.

43. (Previously amended) The electrically erasable programmable memory device of claim 39, wherein said contact layer has a thickness of about 200 angstroms or less.

44. (Previously amended) The electrically erasable programmable memory device of claim 39, wherein said intermediate conductive layer has a thickness of about 200 angstroms or less.

45. (Previously amended three times) A semiconductor device including at least one contact, the at least one contact comprising:
an intermediate conductive layer contacting and in electrical and thermal communication with a structure of the semiconductor device comprising a phase change component;
an insulator component disposed adjacent said intermediate conductive layer; and
a contact layer adjacent said insulator component and in electrical communication with said intermediate conductive layer.

46. The semiconductor device of claim 45, wherein said insulator component is sandwiched between said intermediate conductive layer and said contact layer.

47. The semiconductor device of claim 44, wherein said intermediate conductive layer and said contact layer substantially envelop said insulator component.

48. The semiconductor device of claim 45, wherein said insulator component comprises a thermally insulative material.

49. The semiconductor device of claim 45, wherein said intermediate conductive layer comprises an electrically conductive material.

50. The semiconductor device of claim 45, wherein said intermediate conductive layer has a thickness of about 200 angstroms or less.

51. The semiconductor device of claim 45, wherein said intermediate conductive layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of a contacted structure between a plurality of states.

52. (Previously amended) The semiconductor device of claim 45, wherein said intermediate conductive layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

53. The semiconductor device of claim 45, wherein said contact layer has a thickness of about 200 angstroms or less.

54. The semiconductor device of claim 45, wherein said contact layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of a contacted structure between a plurality of states.

55. (Previously amended) The semiconductor device of claim 45, wherein said contact layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

56. (Previously amended four times) An enhanced electrically erasable programmable element including a contact comprising:

an intermediate conductive layer contacting and in electrical communication with the electrically erasable programmable element;

an insulator component disposed adjacent said intermediate conductive layer and over the electrically erasable programmable element so as to insulate same; and

an electrically conductive contact layer adjacent said insulator component.

57. The enhanced electrically erasable programmable element of claim 56, wherein said insulator component is sandwiched between said intermediate conductive layer and said contact layer.

58. The enhanced electrically erasable programmable element of claim 56, wherein said intermediate conductive layer and said contact layer substantially envelop said insulator component.

59. The enhanced electrically erasable programmable element of claim 56, wherein said insulator component comprises a thermally insulative material.

60. (Previously amended) The enhanced electrically erasable programmable element of claim 56, wherein said insulator component comprises thermally insulative material including at least one of undoped silicon dioxide, doped silicon dioxide, silicon nitride, a thermoset resin, and a thermoplastic polymer.

61. The enhanced electrically erasable programmable element of claim 56, wherein said intermediate conductive layer comprises an electrically conductive material.

62. The enhanced electrically erasable programmable element of claim 56, wherein said intermediate conductive layer has a thickness of about 200 angstroms or less.

63. The enhanced electrically erasable programmable element of claim 56, wherein said intermediate conductive layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of a contacted structure between a plurality of electrical conductivity states.

64. (Previously amended) The enhanced electrically erasable programmable element of claim 56, wherein said intermediate conductive layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

65. The enhanced electrically erasable programmable element of claim 56, wherein said contact layer has a thickness of about 200 angstroms or less.

66. The enhanced electrically erasable programmable element of claim 56, wherein said contact layer comprises a material having a melting temperature that is greater than a temperature that is required to switch a phase change material of a contacted structure between a plurality of states.

67. (Previously amended) The enhanced electrically erasable programmable element of claim 56, wherein said contact layer comprises at least one of a refractory metal, a refractory metal nitride, and aluminum.

68. (Previously amended) The contact of claim 1, wherein at least one of said intermediate conductive layer and the electrically conductive contact layer abuts a major surface of said silicon-containing dielectric layer.

69. The contact of claim 1, wherein said structure comprises a phase change component.

70. (Previously amended) The contact of claim 32, wherein at least one of said intermediate conductive layer and said contact layer abuts a major surface of said silicon-containing dielectric layer.

71. The contact of claim 32, wherein said structure comprises a phase change component.